Personal Values, Beliefs and Ecological Risk Perception

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1. Goals of the Study

Compare public and expert rankings of ecological risk
Deploy values and beliefs theory to understand risk perceptions

2. Values and Beliefs

Personal Values (Based on Schwartz's typology)
- Altruism – Egoism
- Traditional – Open to Change

Beliefs (worldviews)
- New Ecological Paradigm – **NEP** (a measure of environmentalism)
- Religious/Spiritual Beliefs

The NEP Worldview *

1. Humans are severely abusing the environment.
2. The earth is like a spaceship with limited room & resources.
3. If things continue, we will soon experience an eco catastrophe.
4. The eco crisis facing mankind is real and has not been exaggerated.
5. Nature is not able to cope with the impacts of modern industrial nations.

* Based on the work of Dunlap & Van Liere

3. Survey Questionnaire

Ranking of 24 ecological risk items
Questions on personal values and beliefs
Social structural questions
Administered to:
- The public (randomized national sample)
- EPA risk professionals

4. Variables & Causal Model

Independent Variables

NEP Scale

Spiritual Holism Scales
Dominion over Nature
Spiritual Holism
Supreme Being
Mystery of Nature

Schwartz's Values Scales
Altruism
Self-Interest
Openness to Change
Traditional

Nature Views
Nature sacred; created by God
Nature Itself Scared
Nature not Sacred

How Religious Scale

Age/Cohort
Born after 1959
Born 1946 – 1959
Born before 1946

Education
High School
College
Post Graduate

Ethnicity
Caucasian
Black
Middle Eastern
Hispanic
American Native
Other (Asian, Indian)

Political Views
Conservative
Moderate
Liberal
Democrat
Independent
Republican

Religiosity
Texts are literal
Texts are Inspired; not Literal
Texts are History Books
Never Attend Services
Sometimes Attend Services
Regularly Attend Services

Belief in God
Believe
No Afterlife

Religious Preference
Christianity
Islam
Judaism
Other
No Preference

Income
< $25k/yr
$25 – 80k/yr
> $80k/yr

Sophistication
Raised in City/Suburbs
Raised in Small Town/Rural setting
Internet User

Professional Expertise
Professional
Not an Eco-risk Expert
Intermediate Expertise
Eco-risk Expert

Gender

Dependent Variables

Ranking of 24 Risk Items

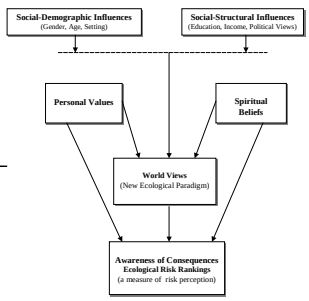
Eco Risks
Eutrophication
Invasive Species
Clear-cut Logging
Loss of Habitat
Damming of Rivers
Wetland Loss
Surface Run-off
Mountain-top Mining
Overgrazing
Entrainment of Fish
Commercial Fishing

Biological Risks
Oil Extraction
Hunting/Fishing
GMO's

Global Risks
Acid Rain
Global Warming
Ozone Depletion
Human Pop Growth

Chemical Risks
Hazardous Wastes
Toxic Organics
Radiation
Heavy Metals
Pesticides
Sewage

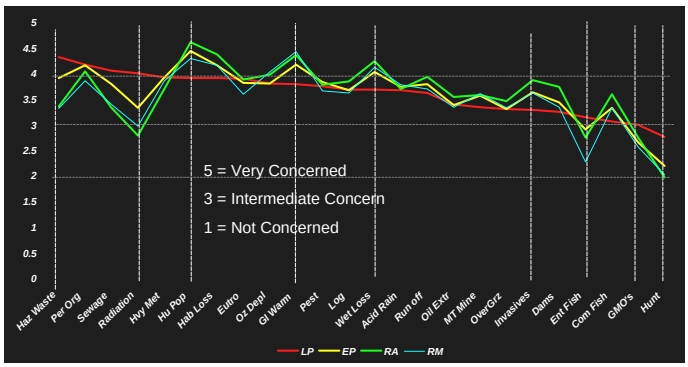
Causal Model



5. Analytical Strategy

Data reviewed and coded
$SPSS_{10}$ used as statistical program
Statistical diagnostics of central tendencies
Data reduction using principal component analyses
Derivation of independent and dependent scales
Multiple linear regression
Determining importance of variables
- ***t* test**: that independent variables have no effect on the dependent variable (-2 to +2)
- ***F* test**: that regression equation explains zero variance

6. Ranking of 24 Risk Items by the Public and Risk Professionals



7. Determining the Important Variables: Regression Coefficients and (*t* values)

Principal Components Analysis reduces the 24 risk items to 4 risk scales

t values p < .001
t values p < .05

Independent Variables	Dependent Variables: Ecological Risk Scale M=3.56	Chemical Risk Scale M=3.81	Global Risk Scale M=3.96	Biological Risk Scale M=2.88	NEP Scale M=18.43
Social Psychological					
NEP	.0622 (7.532)	.0513 (5.574)	.0952 (11.960)	.0422 (3.894)	-- --
Dominion Over Nature	- -	- -	- -	- -	.229 (4.889)
Spiritual Holism	- -	- -	- -	.0523 (4.045)	.204 (4.105)
Supreme Being	- -	- -	- -	- -	.148 (2.718)
Altruism	.0577 (6.663)	.0591 (5.797)	.0586 (6.968)	.0505 (4.239)	.421 (8.699)
Self-Interest	- -	.0371 (2.456)	- -	- -	- -
Traditional	- -	.0351 (1.855)		- -	-.374 (-4.216)
Nature is Sacred	.118 (2.058)	- -	- -	.159 (2.098)	- -
Regularly attends services	-.182 (-2.864)[3]	-.132 (-1.801)	-.190 (-3.358)	- -	- -
Religious Texts Not Literal	- -	- -	-.353 (-3.159)	- -	- -
How Religious	- -	.0348 (2.618)	- -	- -	- -
No Afterlife	-.146 (-2.269)	- -	- -	- -	- -
Christianity	- -	- -	- -	-.210 (-2.645)	- -
Social Structural					
Caucasian	- -	- -	- -	- -	1.201 (2.270)
Makes > $80k/yr	- -	-.330 (-4.963)	- -	-.223 (-2.734)	- -
Age	- -	.0051 (2.201)	- -	.0064 (2.069)	- -
Education	-.0236 (-2.310)	-.0286 (-2.541)	- -	-.0560 (-4.009)	- -
Eco risk Experience	.127 (4.420)	- -	.0461 (1.843)	- -	- -
Democrat	- -	- -	- -	- -	.926 (3.147)
Not an Internet User	.227 (2.576)	- -	- -	.194 (1.506)	- -
Risk Assessors	- -	-.232 (-3.023)	- -	.161 (1.747)	1.101 (3.309)
Risk Managers	- -	- -	.226 (2.783)	- -	- -
Intercept	.869	.926	.935	.600	2.786
R-squared	.425	.386	.499	.336	.458

8. Comparison of R^2 by Variable Type

Risk Scales	Types of Independent Variables: NEP	Schwartz Values	Spiritual Holism	Relig. Beliefs	Socio-demo graphic	Socio-structural	Total R^2
All Groups Combined							
Ecological Risk	.301	.062	- -	.028	- -	.034	.425
Chemical Risk	.023	.208	- -	.013	.006	.136	.386
Global Risk	.418	.052	- -	.017	- -	.012	.499
Biological Risk	.020	.165	.053	.011	- -	.087	.336

9. Conclusions

Personal values & beliefs explain risk rankings
Relationship between NEP & Altruism
- NEP better predictor of global risks
- Altruism better predictor of regulated risks

Consider importance of values & beliefs in problem formulation
Include assessors & managers that hold a range of values & beliefs
Effective participation by public must recognize these influences

. . . we see things not as they are, but as we are.